INDIA WEATHER REVIEW, 1969

ANNUAL SUMMARY

PART-B

SNOWFALL

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INDIA WEATHER REVIEW 1969

ANNUAL SUMMARY - PART - B

S N O W F A L L

This part contains a summary of the reports of snowfall in the mountainous regions to the north of India based on (a) records of snowfall observations made at the observatories and (b) reports collected by local officers from the local residents, headmen of villages or from travellers who have passed through the region, and then transmitted to this office.

The amount of snowfall is usually measured by finding the depth of undisturbed snow lying on the ground. The measurements are given in metres or centimetres. At places provided with raingauges, the snow collected in the gauge is melted and measured as rain. The heights of well-known peaks as reported to the nearest metre, wherever available, while the heights of mountain ranges etc. are reported in tens of metres. In the description the figures given for depths for a month indicate the total amount of snowfall which occurred during that month.

Winter Period - January & February

I - JAMMU AND KASHMIR

BARAMULLAH DISTRICT

Gulmarg (2652 m.) - Twelve snowfalls on 1-3, 7, 9-10, 13, 22, 25-27 and 31 in January all over the area, including Handihal and Apharwat mountains were reported. Total precipitation of 158.0 mm was recorded.

In February snowfalls were observed on 12-14, 16-19 and 23-27 over the whole area including the mountains. Total precipitation was 277.6 mm.

SRINAGAR DISTRICT

Srinagar (1585 m.) - It snowed four times in January, the heaviest being on 13-14 and 26-27. Total precipitation was 47.4 mm. The snowline descended to the lowest. In February, snowfall was on the hills, snowline ascended to 1830 m from 1520 m. Estimated snow accumulation was reported to be the same as that of January.

Snowfall was much below normal in both the months.

DODA DISTRICT

Patni Top (Batote) (2033 m.) - There were three snowfalls in January on 7th, 12th and 13th and two in February on 16th and 17th on the peaks and hills viz. Ensir Dar, Sanasar, Narota, Patnitop, Doda and Batote hills.

Snow accumulation of 76 cm was estimated on 13th January on the first four peaks named above; while it was reported to have thinned in February.

LADAKH DISTRICT

Leh (3514 m.) - Snowfall was reported to have occurred on 7th, 13th, 26th, 30th of

January, the total depth being 14.4 cm.

Snow accumulation on the passes and peaks was 15.2 cm by the end of the month. It was much below normal.

Report for February was not received.

Khangral - Snowfall was reported on four occasions in January and three in February. The depths were reported as follows :

Name of place	Snowfall (cm)	
	January	February
Khangral	20	33
Fotula	106	61
Nomikala	76	76

The snowfall was normal.

ANANTNAG DISTRICT

Qazigund (1690 m) - Snowfall was reported six times in January on 2, 7, 12, 13, 27 an 31 and four times in February on 13, 16, 17 and 18. They were of varying intensities and were sometimes accompanied by rain also.

Snow accumulation in the valley was reported to be about 80 cm in January an 15.5 cm in February. The snowfall was below normal.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

The following table gives a summary of snowfall for the district :

Name of Station	Station Ht. a.s.l. m.	Dates of occurrence	Total depth of snowfall	Lowest height of snowline	Depth of snow on passes m.
		JANUARY			
Chamba	924	14	7.6 cm	920 m.	60 cm
Ludrera	975	14	2.5 cm	940 m.	90 cm
Bhandal	1730	2, 7, 13, 27, 28	53.3 cm	1520 m.	1.5 m
Chowari	1021	-	-	-	60 cm
Kala Top	2414	1, 6, 12, 13, 25-27,31	1.7 m	2130 m	60 cm
Bharmaur	2155	8-11, 13, 14, 26, 27	97.0 cm	2130 m	90 cm
Tissa	1570	13, 14, 27, 28	53.3 cm	1550 m	1.8 m
Kilar	2564	8, 13, 15, 26-28	1.7 m	2470 m	1.8 m
		FEBRUARY			
Chamba	924	-	-	2290 m	60 cm

Name of Station	Station Ht. a.s.l.	Dates of occurrence	Total depth of snowfall	Lowest height of snowline	Depth of snow on passes
	m.				m.
		FEBRUARY (Contd.)			
Ludrera	975	-	-	-	60 cm
Bhandal	1730	14, 16, 17	22.9 cm	1710 m	1.2 m
Chawari	1021	-	-	-	30 cm
Kala Top	2414	1, 13, 15, 16, 24	116.8 cm	2380 m	30 cm
Bharmaur	2155	8, 14, 16-18, 27	132.0 cm	2130 m	1.8 m
Tissa	1570	-	-	2440 m	1.8 m
Kilar	2564	1, 2, 16, 17, 24,25	114.8 cm	2440 m	1.8 m

Snow accumulation on passes was as given below :

Name of Pass	Accumulation in metres	
	January	February
Sach	1.8	1.8
Drati	1.8	1.8
Kalichhow	1.5	1.5
Padhari	0.6	0.6
Basodhan	0.6	0.6

The snowfall was normal for both the months.

Upper Chamba Range -

The reports mentioned snowfall, on the high peaks of the range, to be in the form of hail on 2, 7, 13, 27 and 28 January and 1, 14, 16 and 27 February. Snow accumulation was reported as under :-

Name of Peak	Accumulation in metres	
	January	February
Baliani	4.6	5.2
Kanikote	4.3	4.9
Sabrew	4.6	5.2

The snowfall was much above normal in January and normal in February.

MAHASU DISTRICT

Chopal (2342 m.) - Report for January was not received. In February, snow fell on 14th and 17th, total fall being of depth of 27.9 cm, which was much below normal.

The depths of snow reported on Chur peak were 1.2 m on 14th and 1.5 m on 17th.

Solan (1530 m.) - No snowfall was reported during the period at the station proper. However, snow was observed on the mountain peaks.

Arki (1219 m.) - In January, snowfall was observed at the height of 1220 m on the following hill ranges of the tehsil to a depth of 15 cm to 60 cm.

Bangora	15.2 cm
Baridhar	61.0 cm
Dhiampur	15.2 cm
Kararaghat	45.7 cm

February had no snowfall.

The snowfall was normal for the period.

Phancha (2271 m.) - Snowfall was as under :-

Date	January Snowfall	Date	February Snowfall
8	5 cm	1	10 cm
12	5 cm	2	5 cm
13	5 cm	14	8 cm
17	15 cm	15	9 cm
26	10 cm	16	15 cm
27	15 cm	24	10 cm
Total	55 cm		57 cm

Snowfall was normal in January and below normal in February.

Kotkhai (1676 m.) - Snowfall of 7.6 cm at the station and 61 cm on the mountain tops of Kharapathar, Wehra, Mundrow and Baghi were reported for January, which was much below normal.

For February, about 0.9 m depth of snowfall was reported over the same peak This was reported as below normal.

KINNAUR DISTRICT

Kilba Range - Following table gives snowfall at Kilba and Sangla stations in this range during January and February.

Name of station	Snowfall	
	January	February
Kilba	26 cm	34 cm
Sangla	91 cm	118 cm

The snowfall was much below normal at the stations in January and normal at Kilba and much above normal at Sangla in February.

Pooh Range - Depths of snowfall at various stations of the range were reported as under :-

Dates	Pooh	Namgia	Giabong
	JANUARY		
1	6 cm	7 cm	6 cm
2	2 cm	4 cm	3 cm
4	3 cm	4 cm	3 cm
5	4 cm	5 cm	5 cm
6	7 cm	9 cm	8 cm
12	10 cm	12 cm	10 cm
13	12 cm	14 cm	11 cm
26	4 cm	6 cm	5 cm
27	3 cm	4 cm	3 cm
31	4 cm	6 cm	5 cm
Total	55 cm	71 cm	59 cm
	FEBRUARY		
13	6 cm	7 cm	9 cm
14	9 cm	11 cm	12 cm
16	30 cm	35 cm	37 cm
17	15 cm	18 cm	17 cm
23	3 cm	5 cm	6 cm
Total	63 cm	76 cm	81 cm

SIMLA DISTRICT

Simla (2202 m.) - Snow of depth 23 to 28 cm was reported on Jakho, the highest peak in Simla, on 13-14 January.

In February on 13th and 14th a snowfall of 10-13 cm and on 17th that of 13-18 cm was reported.

III - UTTAR PRADESH

TEHRI GARHWAL DISTRICT

The first snow in January occurred on 2nd-3rd night upto a height of 2130 m. on the peaks of Dhanolti, Surkanda, Nagtippa, Bugadwar and Tak to a depth of 7.6 cm. Thereafter snowfall was on 12th to a depth of 2.5 cm, on 13th to a depth of 10.2 cm descending to 1680 m., on 14th to a depth of 91 cm and last one on 28th to a depth of 5.1 cm. The snow usually fell during the night.

The total amount was 116 cm which was below normal.

Report for February was not received.

Mukhim (1981 m.) - No snowfall occurred in the period.

NAINITAL DISTRICT

Nainital (1953 m.) - Snowfall was on 14 and 28 January amounting to 22 mm and 1 mm respectively. Minimum temperature was -4°C.

Mukteswar (2310 m.) - Snowfall occurred on six days in January, the total depth being 21.6 cm. It was normal for the month.

In February the snowfalls occurred on 2 days and extended to high peaks of Naina and Ramgarh. The depth was about 1.3 cm, which was much below normal.

ALMORA DISTRICT

Patti Malla Danpur - The Patwari of Malla Danpur reported snowfalls and accumulations as under :-

Peak	January		February	
	Snow-fall	Accumu-lation	Snow-fall	Accumu-lation
	(in metres)			
Kautela	2.1	1.5	0.6	0.9
Kafini	2.0	1.7	0.9	1.2
Bankatia	4.1	2.4	1.5	2.1
Pinder	3.2	2.6	1.8	2.4
Nanda Devi	3.8	2.7	2.1	2.7
Sunderdhunga	3.7	2.7	1.8	2.4

Over the Patti, the snowfall for January was 3.14 m., which was above normal and for February 1.5 m. said to be much below normal.

Pre-Monsoon Period - March to May

I - JAMMU AND KASHMIR

BARAMULLAH DISTRICT

Gulmarg (2652 m.) - Snowfalls were reported to have occurred at the station and surrounding on 18-20, 22, 25 and 26th of March. Total precipitation was 126.2 mm. This was much above normal.

Five snowfalls were reported on 20-21, 23, 26 and 29th of April over the whole area. Total precipitation was 305.6 mm. The snowfall was above normal.

In May, on 1, 13 and 16th snow fell over the whole area; while on 9, 11, 14, 18, 22, 24 and 31st, it was on Handibal and Apharwat mountains only. The total precipitation was 189.6 mm, which was normal.

SRINAGAR DISTRICT

Srinagar (1585 m.) - The snowfall was on the mountains only upto a height of 2130 m in March. The snow accumulation on passes and peaks was reported to have started receding.

In the last week of April, heavy snowfall was reported in the whole valley. Total precipitation was 193.2 mm which was normal. The accumulation of snow on high passes and peaks was reported to be maximum. The snowfall was reported as an unusual phenomenon for the last fifty years or so.

The snow fell above about 1830 m. Total precipitation was 111.4 mm, which was normal for May.

DODA DISTRICT

Patni Top - Batote (2033 m.) - No snow was observed during March.

Snowfall was on high peaks of mountain ranges on 20th and 29th in April. The following peaks and ranges received the snowfall : Eastern Pirpanchal Range, Ensin Dar, Sanasar Peak, Narota Peak, Patnitop and Doda hills. Accumulation of snow was present on eastern Pirpanchal, Ensin Dar and Sanasar peaks.

Only light snowfall was noticed on the high mountain peaks on 13th May viz. Sanasar, Narota and Patnitop. No accumulation was reported.

ANANTNAG DISTRICT

Qazigund (1690 m.) - There were snowfalls on 22nd and 26th of March. Very little accumulation was reported. The snowfall was below normal.

It snowed on four days - 20, 21, 29 and 30 in April. Snowfall on 29th was of heavy intensity. Snow accumulation at the station was 25.5 cm. It was reported that the snowfall was a record for about 40 to 45 years.

No snowfall was in May.

LADAKH DISTRICT

Khangral - Snowfall was on three occasions in March. It was 10.1 cm at the village of Khangral, 30 cm at Fotula and 15.2 cm at Namikala. It was reported as normal.

No report was received for April.

In May also, there was snowfall three times, the depths being 0.7, 1.2 and 0.6 metre at the station Khangral, Fotula and Namikala respectively.

Snowfall was said to be above normal for May.

UDHAMPUR DISTRICT

Banihal (1624 m.) - No reports for March and April were received. In May, there was no snowfall.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

Following table summarizes the snowfall in the district during the period :

Station	Station Ht. a.s.l	Depth of Snowfall At Station	On well-known passes	Period of occurrence	Lowest Ht. of snowline
	m.				m.
		MARCH			
Chamba	924	--	0.6 m	--	2740
Bhandal	1730	--	0.6 m	--	--
Kala Top	2414	76.2 mm	--	19th	2410
Bharmaur	2155	0	0.6 m		2740
Kilar	2564	86.1 cm	1.5 m	22nd-26th	2440
Tissa	1570	--	1.5 m	--	1830
		APRIL			
Bharmaur		No snowfall			
Tissa	--	--	1.5 m	--	--
Kilar	2564	1.0 m	1.5 m	17,18,29 & 30	2440
		MAY			
Bharmaur		No snowfall			
Tissa	--	--	--	--	3050
Kilar	--	--	--	--	3050

The snowfall was below normal for March and May and normal for April.

Name of Pass	Depth of Snow Accumulation in metres in		
	March	April	May
Sach	1.5	1.5	0.9
Drati	1.5	1.5	0.9
Kalichho	1.5	1.5	0.9
Padhari	0.3	-	-
Basodan	0.3	-	-
Cheni	-	-	1.8
Duga	-	-	3.4
Moru	-	-	7.3

Upper Chamba Range - Snowfall in the form of hail was reported on 3 days - 18, 19 and 26 March, on Kankote, Sabrew and Baliani peaks, the depth being 0.3 m. Accumulations on the same peaks were 5.2, 5.5 and 5.5 m respectively.

The snowfall was normal.

Reports for April and May were not received.

Pangi-Kilar (2564 m.) - A total snowfall of 0.9 to 1.5 m on mountain peaks and an accumulation of 4.9 m. to 6.1 m on passes was reported for May.

Reports for March and April were not received.

Dalhousie Forest Division - Snowfall occurred above 2440 m. elevation. Accumulation was 2.4 m. - 3.0 m. in May, which was reported to be normal.

No reports were received for March and April.

KULU DISTRICT

Information on snowfall on mountain peaks in Banjor sub-tehsil was as follows :-

Peak	Accumulation at the beginning of the month	Snowfall during the month	Accumulation remaining at the end of the month
	(in Metres)		
	April		
Skirm	1.00	0.25	0.25
Lambri	1.00	0.25	0.25
Gargarasan	2.00	0.33	0.25
Shupakum	2.00	0.33	0.66
Bashelu	1.25	0.25	0.50
Phalach	2.00	0.33	0.66
Tirth	2.50	0.50	1.00
	May		
Skirm	0.25	0.13	0
Lambri	0.25	0.13	0
Gargarasan	0.66	0.50	0.66
Shupakum	0.66	0.50	0.66
Bashelu	0.50	0.13	0
Phalach	0.66	0.50	0.66
Tirth	1.00	0.50	1.00

Report for March was not received.

Snow accumulation at the end of May on the mountain peaks in Kulu Tehsil was -

	Name of Peak						
	Hanta	Rohtang	Barsai	Bhojdkar	Chander-Khani	Lohri Achksi	Sari
Accumulation in metres	3.2	3.4	1.5	0.8	1.3	0.5	0.5

Lahoul Range - Snowfall in March, April and May was as follows :-

March	Udaipur (2591 m.)	Tindi (2286 m.)	April	Udaipur (2591 m.)	Tindi (2[illegible] m.)	May	Udaipur (2591 m.)	Tindi (2[illegible] m.)
19	5 cm	6.25 cm	20	12.50 cm	10.00 cm	11	7.50 cm	5.00 cm
22	10 cm	12.50 cm	21	7.50 cm	7.50 cm	12	10.00 cm	10.00 cm
25	67 cm	60.00 cm	27	7.50 cm	5.00 cm	13	7.50 cm	7.50 cm
			28	15.00 cm	15.00 cm	15	12.50 cm	10.00 cm
			29	25.00 cm	25.00 cm	19	15.00 cm	15.00 cm
			30	7.50 cm	10.00 cm			
TOTAL	82 cm	78.75 cm		75.00 cm	72.50 cm		52.50 cm	47.50 cm

KINNAUR DISTRICT

There was no snofall at Kilba during the period March to May.

Sangla reported 0.08 cm on 18th March and 1.02 cm and 0.08 cm on 29th and 30th respectively of April. There was no snowfall in May.

The snowfall was much below normal throughout the period.

Pooh Range - Reports from Pooh, Namgia and Giabang of the range indicate no snowfall during the period.

Kailash Range - There was no snow in April. On 1st of May at Purbani snowfall was 5 cm. Report for March was not received.

MAHASU DISTRICT

Chopal (2[illegible] m.) - There was no snow during the period.

Kotkhai (1676 m.) - A snowfall of depth 12.5 cm for 19th March was reported at a height of 2290 to 2590 m. on the mountain peaks.

No reports for April and May were received.

Arki Tahsil - There was no snow in March and April. No report for May was received.

Phancha (2271 m.) - There was no snowfall during the period. Mountain peaks, however, were reported to be covered with snow.

Solan (1530 m.) - No snowfall was in March. Reports for April and May were not received.

SIMLA DISTRICT

Simla (2202 m.) - There was no snowfall during the period.

III - UTTAR PRADESH

TEHRI-GARHWAL DISTRICT

No snowfall was reported for the district throughout the period.

NAINITAL DISTRICT

Mukteswar (2310 m.) - Snowfall was reported 'nil' for March, April and May.

ALMORA DISTRICT

Patti Malla Danpur - Snowfall and accumulation were reported as under :

Peak	Snowfall			Accumulation		
	March	April	May	March	April	May
Kautela	0.8 m	1.1 m	15 cm	0.9 m	1.2 m	0.8 m
Kafini	1.1 m	1.4 m	0.3 m	1.1 m	1.4 m	1.1 m
Bankatia	1.8 m	2.1 m	0.6 m	1.8 m	2.7 m	2.4 m
Pinder	2.1 m	2.3 m	0.8 m	2.3 m	2.9 m	2.3 m
Nanda Devi	2.4 m	2.6 m	1.2 m	2.6 m	3.2 m	2.7 m
Sunderdhunga	1.8 m	2.4 m	0.9 m	2.3 m	3.0 m	2.4 m

The snowfall was normal for March and May and above normal for April.

Southwest Monsoon Period - June to September

June - July

I. JAMMU & KASHMIR

BARAMULLA DISTRICT

Gulmarg (2652 m.) - There was no snowfall during the period June - July which was below normal.

Snow accumulation was however reported on Apharwat and Handibal mountains.

SRINAGAR DISTRICT

Srinagar (1585 m.) - No snowfall during the period. This was below normal for June and normal for July.

Snow accumulation was reported to have started melting and mountain passes had opened.

ANANTNAG DISTRICT

Qazigund (1690 m.) - There was no snowfall during June and July.

DODA DISTRICT

Patnitop (Batote) (2033 m.) - No snowfall or accumulation was observed during the period. This was normal for the period.

II - PUNJAB & HIMACHAL PRADESH

CHAMBA DISTRICT

There was no snowfall during June and July in this district. This was said to be normal.

Snow accumulation on passes was as under :-

Name of Pass	Accumulation in m	
	June	July
Sach	0.6	0.6
Drati	0.6	0.6
Kalichho	0.6-1.5	0.6-1.2
Padhari	-	-
Basodan	-	-
Kugti	1.2	0.9-1.2
Chobhia	1.5	0.9-1.2

The snow was reported to be at a height of 3660-3960 m.

KINNAUR DISTRICT

Kilba Range - There was no snowfall at Kilba and Sangla during the period June-July. This was normal.

Pooh Range - Pooh, Namgia and Giabong stations reported no snowfall for the period.

Kailash Range - Shongtang, Purbani and Skiba stations of the range reported no snowfall during the period.

MAHASU DISTRICT

Chopal (2342 m.) - No snow reported from the Tehasil for June. Report for July was not received.

Jubbal (1891 m.) - There was no snowfall in the tehasil in July. June report was not received.

Solan (1530 m.) - There was no snowfall in the tehasil in July. June report was not received.

SIMLA DISTRICT

Simla (2202 m.) - There was no snowfall during the period June-July.

III - UTTAR PRADESH

DEHRA DUN DISTRICT

Mussoorie (2042 m.) - There was no snowfall for the period June-July.

Tehri-Garhwal - There was no snowfall during the period.

NAINITAL DISTRICT

Mukteswar (2310 m.) - There was no snowfall in June and July.

ALMORA DISTRICT

Malla Danpur - Patwari, Malla Danpur, reported the snowfall and its accumulation as under :-

Name of Peak	Snowfall		Accumulation	
	June	July	June	July
Kautela	Nil	Nil	Nil	Nil
Kafini	15 cm	Nil	0.5 m	0.5 m
Bankatia	0.5 m	30 cm	0.5 m	1.4 m
Pinder	0.6 m	0.5 m	0.6 m	1.5 m
Nanda Devi	0.9 m	0.8 m	0.9 m	2.0 m
Sunderdhunga	0.6 m	30 cm	0.6 m	1.4 m

The snowfall was normal for both the months.

August - September

I - JAMMU & KASHMIR

BARAMULLA DISTRICT

Gulmarg (2652 m.) - There was no snowfall in August. Seven snowfalls on 9,13,14,15, 20, 23 and 24 of September on Handibal and Apharwat mountains were observed. Total

precipitation was 20.4 mm. This was below normal. Small patches of snow accumulation were visible on the mountains.

SRINAGAR DISTRICT

Srinagar (1585 m.) - No snow fell during both the months. This was normal for August, while below normal for September.

Snow accumulation on mountains was very little.

ANANTNAG DISTRICT

Qazigund (1690 m.) - There was no snowfall for both the months.

DODA DISTRICT

Patnitop (Batote) (2033 m.) - There was neither snowfall nor snow accumulation on mountains during the period. This was normal for the months.

LADAKH DISTRICT

Leh (3514 m.) - Report for August was not received. September report said that there was snowfall of 2.5 cm three times on Fotula. This was normal.

Snow accumulation was reported to be normal on Fotula and Nomikala.

II - PUNJAB & HIMACHAL PRADESH

CHAMBA DISTRICT

None of the raingauge stations viz. Chamba, Ludrera, Chhattrari, Bhandal, Chowari, Bathri, Kalatop, Bharmaur, Tissa, Bhanouta and Kilar reported any snowfall during the period. This was normal.

Snow accumulation over certain passes was as under :-

Name of Pass	Snow accumulation	
	August	September
Sach	0.5 m	0.5 m
Drati	0.5 m	0.5 m
Kalichho	0.5 m	0;5 m
Padhari	-	-
Basodhan	-	-
Chabia	0.7 m	0.5 m
Kugti	0.6 m	0.6 m

The snow was reported to be at a height of 3960 m.

KINNAUR DISTRICT

Kilba Range - There was no snowfall. At Kilba it was normal for August and below normal for September.

Pooh Range - There was no snowfall at any of the stations Pooh, Namgia and Giabong fof the period.

Kailash Range - No snowfall was reported for the period.

MAHASU DISTRICT

Chopal Tahsil - There was no snowfall in the tehasil during the period.

Kumarsain sub-tehasil - No snowfall in September was observed. Report for August was not received.

SIMLA DISTRICT

Simla (2202 m.) - There was no snowfall during the period.

III - UTTAR PRADESH

DEHRA DUN DISTRICT

Mussoorie (2042 m.) - Report for August was not received. There was no snowfall during September.

TEHRI-GARHWAL DISTRICT

There was no snowfall in the district in September. August report was not received.

NAINITAL DISTRICT

Mukteswar (2310 m.) - The observatory at the station reported 'nil' for both the months of August and September.

ALMORA DISTRICT

Reports from Patwari, Malla Danpur, are tabulated below :-

Peaks of the Patti	Snowfall		Accumulation	
	August	September	August	September
Kautela	0	50 cm	0	0
Kafini	0	80 cm	60 cm	1.4 m
Bankatia	15 cm	1.2 m	1.2 m	2.3 m
Pinder	30 cm	1.1 m	1.5 m	2.3 m
Nanda Devi	60 cm	1.7 m	2.1 m	3.5 m
Sunderdhunga	15 cm	90 cm	1.4 m	2.1 m

The snowfall was below normal for August and above normal for September.

Post Monsoon Period - October to December

I - JAMMU AND KASHMIR

BARAMULLA DISTRICT

Gulmarg (2652 m.) - There was snowfall on five days of October on 11, 15, 16, 27 and 28 in and around Khelanmarg, Apharwat and Handibal. Total precipitation was 94.4 mm which was above normal.

Four snowfalls were observed on 12, 13, 19 and 20 November over the whole area of Gulmarg. Total precipitation was 8.9 mm which was below normal.

In December, there was snowfall on 30th only at the station and at Tangmarg. Total precipitation was 5.0 mm, which was below normal.

SRINAGAR DISTRICT

Srinagar (1585 m.) - Snowfall was reported to have occurred on hills and mountains only but not at the station proper. It was reported that snow had started accumulating on high peaks and passes.

No snowfall was reported for November.

This was below normal. Light snowfall occurred on the hills of the valley in the last week of December. This was below normal.

Snow accumulation was also reported as appreciably below normal.

ANANTNAG DISTRICT

Qazigund (1690 m) - No snowfall occurred during the whole period - October to December.

DODA DISTRICT

Patnitop (Batote)(2033 m.) - No snowfall during October which was normal. No snow accumulation was observed on high passes of the district during the month.

Snowfall of 5 cm at the station, 30 cm at Fotula and 15 cm at Namikala was reported for November. This was normal.

In December, there was snowfall four times, the amounts being 2.5 at the station, 30 cm at Fotula and 15 cm at Namikala. It was normal.

Accumulation of snow was reported at the above places.

II - PUNJAB & HIMACHAL PRADESH

CHAMBA DISTRICT

None of the following raingauge stations in the district reported snowfall during the period.

Chamba, Ludrera, Chhatrari, Bhandal, Chowari, Bhathari, Kalatop, Bharmaur, Tissa, Kilar and Bhanauta.

This was below normal for each of the months.

Snow accumulation on the well known passes was reported as under :-

Name of Pass	Snow accumulation(Cm) during		
	October	November	December
Sach	50	50	50
Drati	50	50	50
Kalichho	60	50	50
Padhari	-	-	-
Basodhan	-	-	-
Kugati	60	-	-
Chalia	30	-	-

The snowfall was upto 3960 m. altitude.

Upper Chamba Range - Snowfall was reported to be in the shape of hail stones on the highest peaks of the range on 3, 15 and 16 of October and 14 and 15 of December to the depths of 15 cm and 20 cm in respective months. Report for November was not received.

The snowfall was above normal for October and below normal for December.

Snow accumulation was as given below :-

Name of Peak	Snow accumulation		
	October	November	December
Baliani	20 cm	-	20 cm
Kankot	15 cm	-	10 cm
Sakrew	10 cm	-	15 cm

KINNAUR DISTRICT

Kilba Range - There was no snowfall in October and November. This was below normal for the months.

Report for December was not received.

Kailash Range - Raingauge stations Shongtong and Purbani reported no snowfall in November and December. Report for October was not received.

Pooh Range - There was no snowfall in October. No report was received for November. On 10th December snowfall amounts were 3.8 cm at Pooh, 5.1 cm at Namgia and 2.5 cm at Chabang

MAHASU DISTRICT

Kumarsain sub-tahsil - The Naib Tehasildar reported no snowfall in the sub-tehasil for the whole period. While this was normal for October and November, it was below normal for December.

Chopal Tahsil - There was no snowfall in the tahsil in October, while reports for November and December indicated 'nil' snowfall at the station Chopal. It was below normal for December and normal for October and November.

Solan (1530 m.) - No snowfall recorded in November and December. Report for October was not received.

This was below normal for December and normal for November.

SIMLA DISTRICT

Simla (2202 m.) - No snowfall occrred in the period.

Mashobra - No snowfall occurred in the period.

III - UTTAR PRADESH

DEHRA DUN DISTRICT

Mussoorie (2042 m.) - No snowfall was recorded during the period.

TEHRI GARHWAL DISTRICT

Reports from the local officials as also from Mukhim Observatory indicated no snowfall in the district throughout the period.

This was below normal.

NAINITAL DISTRICT

Mukteswar (2310 m.) - No snowfall was recorded throughout the period.

ALMORA DISTRICT

Snowfall and snow accumulation were reported as follows for the Malla Danpur :

Name of Peak	Snowfall			Snow accumulation		
	October	November	December	October	November	December
Kautela	60 cm	80 cm	90 cm	15 cm	15 cm	30 cm
Bankatiya	1.5 m	1.8 m	2.3 m	2.4 m	2.6 m	2.4 m
Kafini	1.5 m	1.7 m	1.8 m	1.5 m	1.7 m	1.2 m
Pinder	1.2 m	1.4 m	2.1 m	2.9 m	3.0 m	2.7 m
Nandadevi	2.1 m	2.3 m	2.6 m	3.7 m	3.8 m	3.0 m
Sunderdhunga	1.2 m	1.4 m	2.1 m	2.4 m	2.6 m	2.4 m

Snowfall was above normal throughout the period of October to December.

S U M M A R Y

Winter Period - January and February

Snowfall for this period was slightly below normal in all the regions viz. Jammu and Kashmir, Punjab, Himachal Pradesh and Uttar Pradesh.

Premonsoon Period - March to May

Snowfall was normal in Jammu and Kashmir, it was slightly below normal in Punjab and Himachal Pradesh and slightly above normal in Uttar Pradesh.

Monsoon Period - June and July

Occurrence of snowfall was much less during the season and mostly limited to high peaks. That too was slightly below normal in Jammu and Kashmir but was normal in Punjab, Himachal Pradesh and Uttar Pradesh.

August and September

In this period also, from the available reports of snowfall it may be said that the snowfall was slightly below normal in Jammu and Kashmir and Punjab, Himachal Pradesh and below normal in Uttar Pradesh.

Post Monsoon Period - October to December

Slightly below normal snowfall occurred both in Jammu and Kashmir and Punjab and Himachal Pradesh, while it was normal in Uttar Pradesh.

NOTE :- It is not possible to adopt a single classification of seasons which will be satisfactory for the whole of India. The classification adopted in this publication is devised from the point of view of rainfall in the country.

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